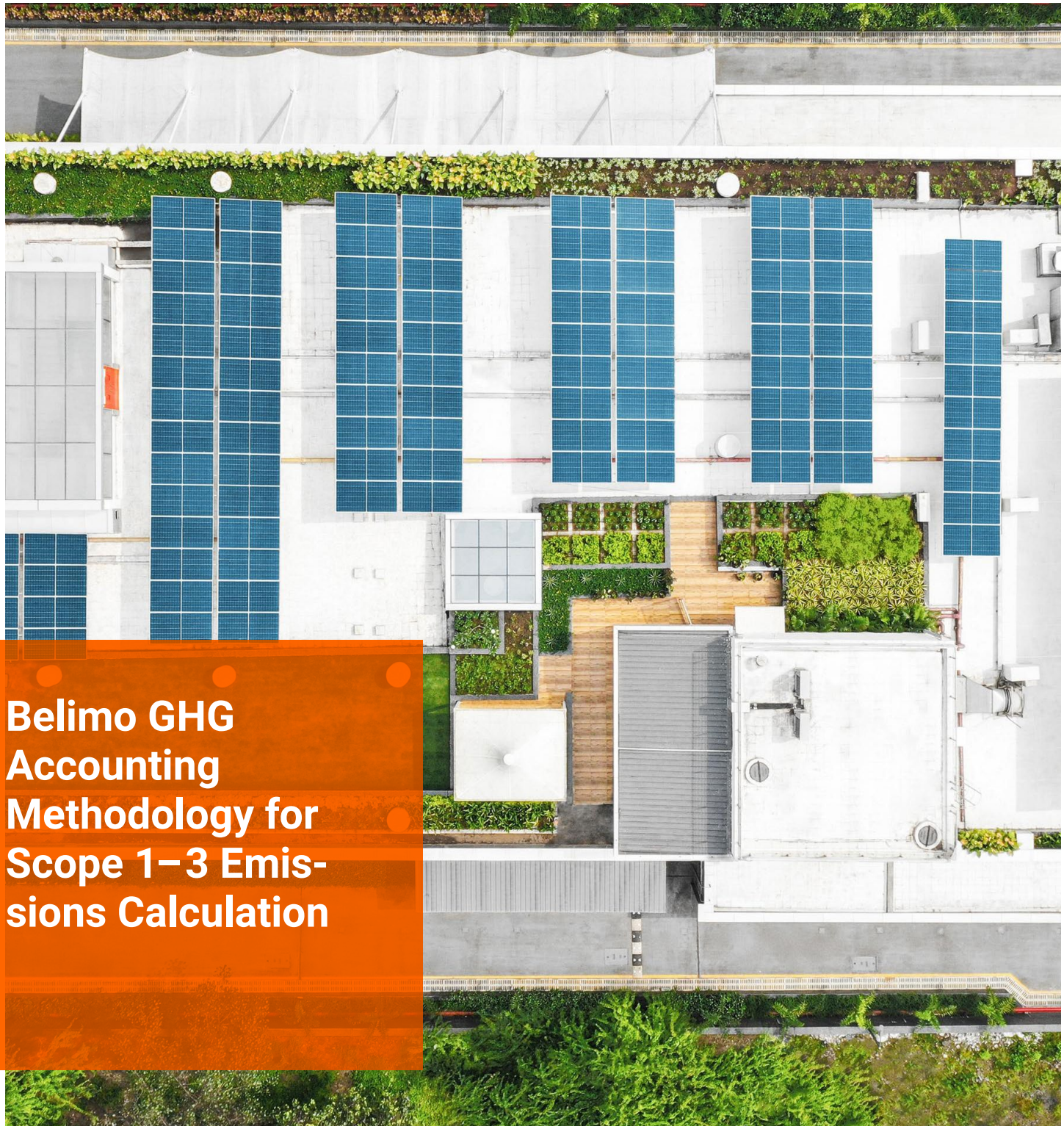

Belimo GHG Accounting Methodology for Scope 1–3 Emissions Calculation

External Documentation

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For External Publication

1. Introduction

Establishing a solid methodology for our Scope 1, 2, and 3 greenhouse gas (GHG) emission accounting helps Belimo improve sustainability transparency, identify carbon hotspots, and reduce emissions along the value chain. This document summarizes the methodology applied by Belimo to quantifying and annually reporting Scope 1, 2, and 3 emissions.

The methodology is aligned with the Greenhouse Gas Protocol (GHGP) and the net zero guidelines IWA 42:2022 by the International Organization for Standardization (ISO; IWA42:2022). Belimo accounts its GHG emissions in accordance with the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) and the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011) (Corporate Standard | GHG Protocol; Corporate Value Chain (Scope 3) Standard | GHG Protocol).

The GHG accounting is aligned with the financial reporting period of Belimo from 1. January to 31. December. For Scope 3 Category 4 and 9 emissions, actual data from January to October is used and November / December emissions are estimated based on the YTD data available. The reason for this is the availability of data and extensive calculation methodology using the harmonized Global Logistics Emissions Council (GLEC) framework. The GLEC provides a standardized framework for reporting logistics emissions.

An operational control approach is applied for the GHG emission calculation. Consequently, this undertaking is accountable for the emissions over which the organization has operational control. Scope 1 and 2 emissions cover all production, logistics and customization sites. Scope 3 emissions cover all entities in the group financial statement, except for Scope 3 Category 5, which covers all production, logistics and customization sites.

Belimo started developing the GHG emission calculation methodology in autumn 2023. The first GHG balance calculation of Scope 1, Scope 2, and material Scope 3 categories was finalized in summer 2024 for the reporting periods FY2022 and FY2023. The annual report on FY2024 will be the first external disclosure of the extended scope of GHG emissions.

The comprehensive GHG balance includes the following material Scope 3 categories for Belimo:

Category 1: Purchased goods and services
Category 4: Upstream transport and distribution
Category 5: Waste generated in operations
Category 6: Business travel
Category 7: Employee commuting
Category 9: Downstream transport and distribution
Category 11: Use of sold products
Category 12: End-of-Life treatment of sold products

The applied methodology ensures that up-to-date emission factors (EFs) from internationally recognized sources are used. The selected Scope 3 categories cover over 90% of Scope 3 emissions (a requirement for long-term targets in line with SBTi). Section 2 of this External Documentation – Belimo GHG Accounting Methodology describes the material Scope 3 categories, including the degree of control and contribution to total Scope 3 emissions. A more detailed methodology description of Scope 3 categories can be found in Section 3 (including data sources, data coverage/omissions rationale, and data quality).

2. Scope 1 / Scope 2 / Scope 3 – Overview

Scope / Category	Description	Control	Coverage
Scope 1	Direct emissions from owned or controlled sources	High	Low
Scope 2	Indirect emissions from purchased electricity, heating, and cooling	High	Low
Category 1: Purchased goods and services	Upstream emissions (cradle-to-gate) of materials, articles, finished products, and packaging purchased by Belimo in the reporting year	High	High
Category 4: Upstream transport and distribution	Upstream emissions from transportation and distribution purchased; inbound logistics, outbound logistics (e.g., of sold products), and intercompany transportation and distribution between owned facilities (vehicles not owned / controlled by Belimo)	High	Medium
Category 5: Waste generated in operations	Emissions generated through the disposal and treatment of waste in the operations of Belimo in the reporting year	Medium	Low
Category 6: Business travel	Emissions from employee travel for business activities (via air, rail, road) during the reporting year (in vehicles not owned / operated by Belimo)	High	Low
Category 7: Employee commuting	Emissions from employees commuting between homes and worksites during the reporting period (in vehicles not owned / operated by Belimo)	Medium	Low
Category 9: Downstream transport and distribution	Downstream emissions from transportation and distribution of products sold by Belimo between Belimo facilities and customers (not purchased by Belimo), including retail and storage (in vehicles not owned / controlled by Belimo)	Medium	Low
Category 11: Use of sold products	Use-phase emissions from energy consumption of total products sold during the reporting period (lifetime of sold products)	Medium	Very High
Category 12: End-of-Life treatment of sold products	Emissions generated from waste disposal and treatment of products sold (during reporting year) at end of life	Medium	Low

Coverage of total scope 1–3 emissions:

Very high: > 80%
High: > 10%–80%
Medium: 1–10%
Low: < 1%

Degree of control over scope 1–3 category:

High: Belimo has a large influence on emissions
Medium: Belimo is limited to control emissions
Low: Belimo is strongly limited to control emissions

3. Scope 3 – GHG Emission Calculation Methodology

3.1 Category 1

The calculation of Scope 3 Category 1 upstream emissions of purchased goods and services (cradle-to-gate) is based on a material classification system and weight-based EF application. The emission calculation is performed for all A and B articles / finished products purchased during the reporting period. With this approach, Belimo covers 95% of the weight and procurement expenditure volume in its GHG balance.

- **Calculation:** Purchased articles or finished products in the procurement report are allocated to main material and sub-material categories. The net weight of the article / finished product is required and taken from the procurement report. For each sub-material category, the EFs (kg CO2e / kg) are extracted from the lifecycle assessment (LCA) database ecoinvent. The latest EFs available were applied. When a specific sub-material category was unavailable in the LCA database, feasible proxies were chosen. Innovation / mechanical experts mapped sub-material categories, articles, and EFs to ensure data accuracy. For the emission calculation, the sub-material EFs in kg CO2e / kg are multiplied by the purchased sub-material quantities in kg.
- **Outlook:** Belimo aims to improve the quality of procurement data (article weights, sub-material categories, EFs, geographical representation). In the future, supplier-specific data will be applied if available.

3.2 Category 4

The scope of upstream transportation extends to shipments of material procured by all Belimo entities from external suppliers and delivered to Belimo Logistics and Customizing (L&C) locations or sub-contracted manufacturing locations. Also included in the scope are shipments sent between two Belimo locations e.g., Production location (e.g., Hinwil) to L&C locations and/or subsidiaries.

- **Calculation:** Scope 3 Category 4 emissions from upstream transportation and distribution are calculated based on the total weight of shipments. Belimo follows the GLEC framework v3.0, which is ISO14083 compliant. The GLEC framework is based on the "well-to-wake" (WTW) concept.
- **Outlook:** Belimo aims to improve the quality of shipment data.

3.3 Category 5

The emission calculation related to the waste generated in production / logistics & customization (P/L&C) is based on the waste management input data obtained from the sustainability reporting system. Weight-based EFs are applied.

- **Calculation:** Waste per waste type and treatment type is collected at the P/L&C level. Waste types from hazardous and non-hazardous sources are reported. The EFs per waste type and waste treatment are extracted from the LCA database or Defra. The weight of waste per waste type and waste treatment is multiplied by the corresponding EF (kg CO2e / kg).
- **Outlook:** Belimo aims to continuously improve the data quality (e.g., collecting additional insights and data on incineration with or without energy recovery).

3.4 Category 6

The entities in the calculation scope cover more than 80% of the total expenditure for Belimo's business travel and include Switzerland, the United States, Hong Kong, China, and Canada. For emissions generated through employee business travel by air, rail, and road, a hybrid (distance- and spend-based) approach is applied.

- **Calculation:** Business air travel is based on flight reports from external providers, and the calculation is performed by myclimate following a distance-based (passenger kilometer) approach. EFs are applied by myclimate based on flight class and distance characteristics. Business travel by train, car, and taxi is based on expenditure data following a spend-based approach.
- **Outlook:** Further improvements in data quality and reassessment of the entities within the scope.

3.5 Category 7

The GHG emissions associated with employee commuting are estimated based on headcounts (HCs) and follow a distance-based approach.

- **Calculation:** Belimo has run an employee survey on commuting behavior for Hinwil (HQ) and all Asia Pacific entities. The survey outcome was extrapolated based on the HC reported in the corporate reporting system. Americas and EMEA entities performed a separate assessment of the commuting distance per employee (HC) and assumed all employees commute to work by car. The percentage of time in home office was estimated based on job profile. Distance-based EFs by Defra are applied. In line with the requirements of WBSCD sector guidance, 440 trips to work per reporting year (2 ways per day * 220 days) and the use of diesel as fuel are assumed.
- **Outlook:** The survey will be subject to renewal at regular intervals.

3.6 Category 9

The scope of downstream transportation extends to all customer finished goods shipments originating from a Belimo location for which Belimo organizes and pays the transportation cost. Also included in the scope are return shipments sent at Belimo's cost from customers. Excluded from the calculation are any orders whereby a customer collects or arranges transportation themselves.

This category is calculated analogously to Category 4.

- **Calculation:** Scope 3 Category 9 emissions from downstream transportation are calculated based on the total weight of shipments. Belimo follows the GLEC framework v3.0, which is ISO14083 compliant. The GLEC framework is based on the "well-to-wake" (WTW) concept.
- **Outlook:** Belimo aims to improve the quality of shipment data.

3.7 Category 11

The emissions related to the use-phase of Belimo's sold products are driven by the energy consumption over the products' lifetime and calculated based on technical performance data available for products sold.

- **Calculation:** Technical performance data on the product type level includes energy consumption in operation and in standby mode, cycle running time (actuators), and number of cycles per day (actuators). Based on those parameters and the assumption of a 15-year average lifetime per product, the total lifetime energy consumption (kWh) of sold product types per country is derived. EFs from IEA in kg CO2e / kWh are applied at the country level.
- **Outlook:** Belimo aims to improve the quality and coverage of technical product data.

3.8 Category 12

Emissions from end-of-life treatment of sold products are calculated using a weight approach. Statistics published by the OECD on waste treatment scenarios in different geographical regions (EMEA, AM, and APAC) are applied.

- **Calculation:** Each product category is allocated to its waste type (how the entire product is defined as waste by EWC). Statistics on waste treatment scenarios (incineration, recycling, landfill in %) are provided by the OECD and extracted per waste type and geographical region (EMEA, AM, and APAC). Relevant EFs in kg CO2e / kg waste are taken from Defra and ecoinvent and applied at the level of products sold per region.
- **Outlook:** Emission factor updates (regional level, waste types) are monitored periodically. Data gaps in product weights shall be closed, and improvements in data quality will be focused on.

3.9 Data Sources

Scope / Category	Activity Data	EF Dataset	Reasoning for EF application
Scope 1	• Stationary: P/L&C entity environmental reporting • Mobile: Corporate reporting system (expenditure report)	• Stationary: EPA 2023 • Mobile: Helmholtz 2023	Standard source for Scope 1 EFs (third-party verified)
Scope 2	• Stationary: P/L&C entity environmental reporting	• IEA 2023	Standard source for electricity EFs at country level (location-based)
Scope 3 Category 1	• Corporate procurement database	• ecoinvent version 3.10 (2023)	ecoinvent EFs allow material group-specific allocation based on weight per sub-material group
Scope 3 Category 4	• Corporate procurement database	• GLEC Framework v3.0	State-of-the-art GLEC framework v3.0; EFs derived from fuel source and vehicle type
Scope 3 Category 5	• Stationary: P/L&C entity environmental reporting	• DEFRA UK 2023 • ecoinvent version 3.10 (2023)	Conservative, hybrid approach applied: actual emissions reflected as accurately as possible with conservative EFs from datasets
Scope 3 Category 6	• Corporate reporting system (expenditure report)	• Mobitool 2023 • Helmholtz 2023 • Myclimate 2023	• Mobitool – country-specific for Switzerland • Helmholtz – widely accepted EFs used as standard • myclimate – widely accepted
Scope 3 Category 7	• Corporate reporting system (HC report)	• DEFRA UK 2023	Conservative approach, widely used coefficients
Scope 3 Category 9	• Corporate procurement database	• GLEC Framework v3.0	State-of-the-art GLEC framework v3.0; EFs derived from fuel source and vehicle type
Scope 3 Category 11	• Corporate reporting system (products sold) • Technical product data	• IEA 2023	Country-specific EFs for electricity mix applicable for energy consumption per products sold on country level
Scope 3 Category 12	• Corporate reporting system (products sold) • Technical product data	• DEFRA UK 2023 • ecoinvent version 3.10 (2023)	Conservative, hybrid approach applied: actual emissions reflected as accurately as possible with conservative EFs from either DEFRA or ecoinvent

3.10 Data Coverage

Scope / Category	Omissions / Out of Scope	Rationale
Scope 1	Subsidiaries	Compared to P/L&C (all production, logistics and customization sites are in scope) entities, subsidiaries account for negligible energy consumption
Scope 2	Subsidiaries	Compared to P/L&C (all production, logistics and customization sites are in scope) entities, subsidiaries account for negligible energy consumption
Scope 3 Category 1	C articles (ABC analysis; A = 80%, B = 15%, C = 5% of expenditure / weight) without weights in the procurement system are not considered in the emission calculation	< 5% of the expenditure / weight (articles procured in low quantities) is not material for the overall emissions related to purchased goods
Scope 3 Category 4	None	None
Scope 3 Category 5	Subsidiaries	Compared to P/L&C (all production, logistics and customization sites are in scope) entities, subsidiaries account for negligible waste generation
Scope 3 Category 6	Entities other than CH, US, HK, CN, and CA	CH, US, HK, CN, and CA account for over 80% of the business air travel (most material travel mode). Other entities with little business travel occurrence
Scope 3 Category 7	None	None
Scope 3 Category 9	None	None
Scope 3 Category 11	C products sold (ABC analysis; A = 80%, B = 15%, C = 5% of sales) without technical performance data	<5% of sales are not material for the overall emissions related to energy consumption of sold products
Scope 3 Category 12	C products sold (ABC analysis; A = 80%, B = 15%, C = 5% of sales) without weight data	<5% of sales are not material for the overall emissions related to end-of-life treatment of sold products

3.11 Data Quality

Scope / Category	Accuracy	Regionality	Completeness	Reliability
Scope 1	Widely accepted and applied EF sources available (country-specific)	Geographical representation of all P/L&C entities in EMEA, AM, and APAC	Complete data on energy consumption for all P/L&C entities	High reliability due to invoices (evidence documents)
Scope 2	Widely accepted and applied EF sources available (country-specific)	Geographical representation of all P/L&C entities in EMEA, AM, and APAC	Complete data on energy consumption for all P/L&C entities	High reliability due to invoices (evidence documents)
Scope 3 Category 1	EFs from secondary data sources cannot be obtained for all sub-materials: The EFs have been approximated with those of similar materials	No geographic representation	Data on article weights in the procurement report is not complete. However, 95% is available	Although the weight-based approach is considered less specific than supplier-specific data, it is preferred over the spend-based approach
Scope 3 Category 4	Following the GLEC framework v3.0	Distance approach based on geographical data on shipments	Weight data available per shipment: Order weights displayed in SAP order data are "net" and do not include packaging. An increase of the net weight by 12% is assumed for an estimated packed weight	Weight data and shipment details with medium to high reliability
Scope 3 Category 5	Widely accepted and applied EF sources. If no matching EFs were available for waste type and treatment, proxies were applied	Geographical representation of all P/L&C entities in EMEA, AM, and APAC, but no country-specific waste EFs available	Complete data on waste generation for all P/L&C entities	High reliability due to invoices (evidence documents)
Scope 3 Category 6	EFs for business air travel are provided by an external partner (myclimate); for business travel (road and rail), country-specific EFs are applied	CH, US, HK, CN, and CA	Data collection is limited to entities with material business travel occurrence (CH, US, HK, CN, and CA)	Expenditure data from corporate reporting system with high reliability

Scope / Category	Accuracy	Regionality	Completeness	Reliability
Scope 3 Category 7	EFs for commuting by train, car, and bus from an internationally recognized source	Geographic representation of all P/L&C entities and subsidiaries in EMEA, AM, and APAC	Survey response rate for Hinwil (HQ) and APAC can be increased; Complete data collection / analysis for EMEA and AM	Extrapolation based on HC report from corporate reporting system with high reliability; Assumption on commuting mode and home office
Scope 3 Category 9	Following the GLEC framework v3.0	Distance approach based on geographical data on shipments	Weight data available per shipment: Order weights displayed in SAP order data are "net" and do not include packaging. An increase of the net weight by 12% is assumed for an estimated packed weight	Weight data and shipment details are of medium reliability. Data quality for outbound logistics to customers will be improved
Scope 3 Category 11	EFs from a widely applicable and internationally recognized source	Geographic representation obtained through sales per country data and EF application	Energy consumption data of all AB products is covered (> 95%)	Technical performance data is of high quality if available. However, some data gaps are present (C articles) and approximated with average data
Scope 3 Category 12	Widely accepted and applied EF sources. If no matching EFs were available for waste type and treatment, proxies were applied	Geographical representation obtained through sales per regional data (AM, AP, and EMEA), but no country-specific waste statistics were applied	Weight data of all AB products is covered (> 95%).	Weight data of products sold is of high quality if available. However, some data gaps are present (C articles) and approximated with average data

4. Abbreviation

AM	Americas region
APAC	Asia Pacific region
CA	Canada
CH	Switzerland
CHF	Swiss francs
CN	China
DEFRA	Department of Environment, Food and Rural Affairs
EF	Emission factor(s)
EMEA	Europe, Middle East, and Africa region
EWC	European Waste Catalogue
GHG	Greenhouse gas(es)
GHGP	Greenhouse gas protocol
GLEC	Global Logistics Emissions Council
HC	Headcount
HIN	Hinwil
HK	Hong Kong
HO	Home office
HQ	Headquarters
IEA	International energy agency
ISO	International Organization for Standardization
L&C	Logistics & Customization
OECD	Organization for Economic Co-operation and Development
P/L&C	Production / Logistics & Customization
US	United States of America

All inclusive.

Belimo is the global market leader in the development, production, and sales of field devices for the energy-efficient control of heating, ventilation and air-conditioning systems. The focus of our core business is on damper actuators, control valves, sensors and meters.

Always focusing on customer value, we deliver more than only products. We offer you the complete product range for the regulation and control of HVAC systems from a single source. At the same time, we rely on tested Swiss quality with a five-year warranty. Our worldwide representatives in over 80 countries guarantee short delivery times and comprehensive support through the entire product life. Belimo does indeed include everything.

The “small” Belimo devices have a big impact on comfort, energy efficiency, safety, installation and maintenance.

In short: Small devices, big impact.

- 5-year warranty
- On site around the globe
- Complete product range
- Tested quality
- Short delivery times
- Comprehensive support

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